

Cigarette Smoking and Changes in Smoking among a Cohort of Michigan Adults, 1980-82

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Abstract: Factors related to cigarette smoking and to changes over two years were investigated in a sample of Michigan adults. Smoking was associated with age, sex, education, occupation, and beliefs regarding its health effects. Cessation was predicted by amount smoked at baseline, desire to stop, and belief concerning difficulty stopping. Starting smoking was associated with time off cigarettes (negatively), age, belief about health effects, sex, and education. Heavy smoking and maintenance of cessation are major problems. (*Am J Public Health* 1987; 77:501-502.)

Introduction

Although considerable data have been gathered concerning cigarette smoking and factors related to it,¹⁻⁴ there is still a relative lack of information about processes of change over time within defined populations. While overall rates of smoking are declining, attempts to stop and successful cessation vary among groups.^{5,6} More information is needed with regard to the psychosocial characteristics of those who stop and those who start, and what groups are most at risk for relapse. This study sought to describe changes in smoking in a large sample of adults over a period of two years, to specify major factors related to smoking and to change in smoking.

Methods

In 1980, a probability sample of Michigan residents in private households, age 18 and older, was selected by means of a stratified, multi-stage cluster design. Baseline interviews were completed with 3,073 persons statewide, representing an 83 per cent response rate. A lengthy face-to-face interview covered health history, practices, and beliefs. Cigarette smoking was defined by a response indicating that the individual averaged at least one cigarette per day; everyone else was considered to be a non-smoker at that time. An ex-smoker at baseline was anyone who had smoked at least 100 cigarettes in the past but did not presently smoke. Ex-smokers were asked to indicate how long they had been off cigarettes. Belief about smoking and health was assessed by an item concerning how much avoiding cigarettes helps the person's health, with a five-category response scale. All smokers were asked how easy or difficult it would be to quit with options ranging from very easy to very difficult.

About two years later (1982), a relatively brief questionnaire dealing with the same topics was mailed to all respondents. After major efforts to secure a response, 2,110 completed forms were obtained. At follow-up, smokers who had been non-smokers at baseline were considered starters, and vice versa for quitters.

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Selected characteristics of the cohort respondents are presented in Table 1, along with information about those who were lost to follow-up. While the majority of the loss occurred because people could not be located, it is apparent that significantly larger proportions of those in less advantaged statuses were among the dropouts. Although more smokers were lost, several factors related to smoking itself did not differ between the respondents and non-respondents at follow-up: amount smoked, years of smoking, the benefits of stopping, and estimated difficulty in quitting.

Results

At baseline, slightly more than one-third (34.0 per cent) of the respondents were smoking cigarettes. Of the entire sample, 23.0 per cent were ex-smokers. Smoking and heavy smoking were more characteristic of younger males, those with lesser education, manager-proprietors and blue collar occupations. Of all smokers, over 72 per cent said they wanted to quit smoking, but 80 per cent believed it would be "difficult" or "very difficult" to stop. Despite the apparent desire of the majority of smokers to quit, beliefs concerning the healthful effects of not smoking differed significantly according to smoking status.

Changes in smoking from baseline to follow-up are shown in Table 2. The overall smoking rate for the cohort at follow-up is 33.0 per cent, but this net rate is the result of a more complex set of changes as indicated.

The risk of change to smoking over the time period varied among different groups (Table 3). Most notable is the factor of prior smoking. Among baseline "ex-smokers", 16.3 per cent were on cigarettes at follow-up, while only 2.2 per cent of those who had smoked before, started (data not shown). Even more striking is the length of time a respondent

TABLE 1—Selected Characteristics of the Sample at Baseline, Separately for Cohort and Group Lost to Follow-up

Characteristics	Cohort (n = 2110) %	Lost to Follow-up (n = 963) %
Sex		
% Male	42.7	47.8
Education		
Less than high school	20.4	38.7
High school graduate	42.7	38.2
More than high school	36.9	23.1
Age (years)		
18-24	14.1	17.9
25-44	41.8	36.8
45-64	30.4	25.0
65+	13.6	20.3
Occupation		
Employed	67.5	60.3
Blue collar (of all employed)	43.8	59.2
Smoking Cigarettes		
Total sample	34.0	44.5
26 or more/day (of smokers)	30.0	26.5

Note: Cohort differs significantly from dropouts on all characteristics shown, except level of smoking.

TABLE 2—Changes in Per Cent Smoking, Baseline to Follow-up

	Follow-up		Total (n = 2110)
	Smoking	Not Smoking	
Baseline			
Smoking	29.4	4.6	34.0
Not Smoking	3.6	62.4	66.0
Total	33.0	67.0	100.0

had been abstinent at baseline. Almost 40 per cent of those off cigarettes for less than six months had relapsed. Logistic regression was used to evaluate combinations of predictive factors, with starting versus not starting smoking as the dependent variable. A regression model for the five predictors yielded an overall chi-square of 119 (5 df). Amount of time off cigarettes, belief about the health benefits of not smoking, and age made significant and independent contributions; occupation, education, and sex did not do so.

Rather few measures were related to stopping smoking among those who smoked at baseline. Level of smoking was one such factor, along with belief about difficulty quitting (see Table 4). Neither demographic variables nor belief in benefits were associated with stopping. Logistic regression yielded a three-predictor model: number of cigarettes per day, desire to stop (a dichotomy), and belief about the difficulty of stopping. No additional variables added predictive value to the regression.

Discussion

While cigarette smoking is declining overall, there is considerable variation among groups in rates and levels of consumption. In our sample, high rates and amounts persist

TABLE 3—Factors Related to Initiation of Smoking, Percentages of Non-smokers Starting to Smoke, Baseline to Follow-up

Sex	Per Cent	Education	Per Cent
Male	6.7	<High School	1.1
Female	3.9	High School	6.1
		> High School	6.1
Age (years)		Occupation	
<35	8.9	White collar	5.6
35–54	4.5	Blue collar	8.3
55+	1.5		
Belief in Health Benefits of not Smoking		Time not smoked	
High	4.5	<6 months	38.7
Medium	5.7	6–23 months	29.5
Low	13.6	24–119 months	9.5
		120+ months	2.3

TABLE 4—Factors Related to Cessation of Smoking, Percentages of Smokers Who Stopped Smoking, Baseline to Follow-up

Amount Smoked, baseline	Per Cent
<16/day	14.5
16–25/day	15.5
26 or more	8.1
Number of Years Smoked	
<5 years	19.0
5–9 years	11.9
10–19 years	10.7
20 or more	14.5
Desire to Stop	
Yes	14.8
No or don't know	9.9
Estimated Difficulty Stopping	
Very easy	22.5
Easy	19.4
Difficult	15.9
Very difficult	8.7

in some groups. Yet over time, a fair degree of transition to different smoking statuses was taking place. Factors such as education or sex, associated with smoking cross-sectionally, are not necessarily predictive of change. Stopping appears principally a function of barriers such as level of smoking, possibly reflecting addiction, and perceptions of difficulty. Most smokers have tried to quit and have a sense of the problems involved. In addition, desire to quit, reflecting a motivational state, plays a role. The risk of starting occurs principally among those who have stopped, with time an important conditioner. Thus, relapse is a major problem, although older adults who stop are less likely to re-start. Additionally, lesser belief in the health effects of not smoking makes a separate contribution to risk of relapse. In sum, quitting is most troublesome for heavier users, and is difficult to maintain for those who manage to stop. On the other hand, the role of beliefs and motivation, potentially mutable, should not be underestimated.

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